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<110> Hsu, Daniel K.
<120> Galectin Expression is induced in
  Cirrhotic Liver and Hepatocellular Carcinoma
<130> DANHSU.001C1
<150> 60/129,111
<151> 1999-04-13
<150> PCT/US00/08561
<151> 2000-03-29
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Pro Ala His Asn Pro Gly Ala Pro Pro Pro Gln Gly Trp Asn Arg Pro
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Leu
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Tyr Ser Glu Ala Pro Ala Ala Pro Leu Lys Val Pro Tyr Asp Leu Pro
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Leu Pro Ala Gly Leu Met Pro Arg Leu Leu Ile
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Met Ala Tyr Val Pro Ala Pro Gly Tyr Gln Pro Thr Tyr Asn Pro Thr
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Leu Pro Tyr Lys Arg Pro Ile Pro Gly Gly Leu Ser Val Gly Met Ser
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Ile
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<211> 12
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Pro Ile Pro Gly Gly Leu Ser Val Gly Met Ser Val
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Met Ala Cys Gly Leu Val Ala Ser Asn Leu Asn Leu Lys Pro Gly Glu
Cys Leu
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Met Ala Tyr Val Pro Ala Pro Gly Tyr Gln Pro Thr Tyr Asn Pro Thr
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Leu Pro Tyr Tyr Gln Pro Ile Pro Gly Gly Leu Asn Val Gly Met Ser
Val
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 Ile Val Lys Gly Ser Thr Ile Asp Glu Ser Gln Arg Phe Thr Ile Asn
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 Leu His Ser Lys Thr Ala Asp Phe Ser Gly Asn Asp Val Pro Leu His
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 Val Ser Val Arg Phe Asp Glu Gly Lys Ile
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 Thr Val Gly Gly Phe Ile Asn Asn Ser Pro Gln Arg Phe Ser Val Asn
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 Val Gly Glu Ser Met Asn Ser Leu Ser Leu His Leu Asp His Arg Phe
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Thr Ile Thr Gly Thr Val Asn Ser Asn Pro Asn Arg Phe Ser Leu Asp
Phe Lys Arg Gly Gln Asp Ile Ala Phe His Phe Asn Pro Arg Phe Lys
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Glu Asp His Lys Arg Val Ile
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<211> 41
<212> PRT
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Tyr Ile Gln Gly Ile Ala Lys Asp Asn Met Arg Arg Phe His Val Asn
Phe Ala Val Gly Gln Asp Glu Gly Ala Asp Ile Ala Phe His Phe Asn
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Pro Arg Phe Asp Gly Trp Asp Lys Val
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<211> 41
<212> PRT
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Tyr Ile Gln Gly Met Ala Lys Glu Asn Met Arg Arg Phe His Val Asn
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 Pro Arg Phe Asp Gly Trp Asp Lys Val
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 Arg Val Arg Gly Glu Val Ala Pro Asp Ala Lys Ser Phe Val Leu Asn
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Asn Tyr Gly Ala Asp Gln Asn Thr Ile

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<213> human
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Tyr Ile Gln Gly Val Ala Ser Glu His Met Lys Arg Phe Phe Val Asn
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Phe Val Val Gly Gln Asp Pro Gly Ser Asp Val Ala Phe His Phe Asn
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Pro Arg Phe Asp Gly Trp Asp Lys Val
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<210> 17
<211> 44
<212> PRT
<213> nematode
<400> 17
Val Leu Asn Ser Phe Ser Asn Gly Glu Trp Gly Lys Glu Glu Arg Lys
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Ser Asn Pro Ile Lys Lys Gly Asp Ser Phe Asp Ile Arg Ile Arg Ala
His Asp Asp Arg Phe Gln Ile Ile Val Asp His Lys
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<212> PRT
<213> eel
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Val Met Asn Ser Thr Leu Lys Gly Asp Asn Gly Trp Glu Thr Glu Gln
Arg Ser Thr Asn Phe Thr Leu Ser Ala Gly Gln Tyr Phe Glu Ile Thr
Leu Ser Tyr Asp Ile Asn Lys Phe Tyr Ile Asp Ile Leu Asp Gly Pro
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Val Cys Asn Ser Met Phe Gln Asn Asn Trp Gly Lys Glu Glu Arg Thr
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20

Asn Ala His Gly Asp Ala Asn Thr Ile

30

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Ala Pro Arg Phe Pro Phe Glu Pro Gly Thr Pro Phe Lys Leu Gln Val
Leu Cys Glu Gly Asp His Phe Lys Val Ala Val Asn Asp Ala
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Lys Ser Met Pro Phe Gln Lys Gly His His Phe Glu Leu Val Phe Met
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Val Met Ser Glu His Tyr Lys Val Val Val Asn Gly Thr
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Val Phe Lys Thr Met Gln Ser Gly Gln Trp Gly Lys Glu Glu Lys Lys
Lys Ser Met Pro Phe Gln Lys Gly Lys His Phe Glu Leu Val Phe Met
Val Met Pro Glu His Tyr Lys Val Val Asn Gly Asn
<210> 22
<211> 46
<212> PRT
<213> human
<400> 22
Val Cys Asn Ser Lys Asp Gly Gly Ala Trp Gly Thr Glu Gln Arg Glu
Ala Val Phe Pro Phe Gln Pro Gly Ser Val Ala Glu Val Cys Ile Thr
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                                25
Phe Asp Gln Ala Asn Leu Thr Val Lys Leu Pro Asp Gly Tyr
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<210> 23
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<212> PRT
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<400> 23

Val Phe Asn Thr Leu Gln Gly Gly Lys Trp Gly Ser Glu Glu Arg Lys

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10
                 5
Arg Ser Met Pro Phe Lys Lys Gly Ala Ala Phe Glu Leu Val Phe Ile
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Val Met Ala Glu His Tyr Lys Val Val Val Asn Gly Asn
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<210> 24
<211> 34
<212> PRT
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<400> 24
Glu Phe Lys Asp Tyr Glu His Arg Leu Pro Leu Ser Ser Ile Ser His
Leu Ser Ile Asp Gly Asp Leu Tyr Leu Asn His Val His Trp Gly Gly
            20
                                25
Lys Tyr
<210> 25
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<212> PRT
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<400> 25
Asn Leu Glu Phe Pro Asn Arg Tyr Ser Lys Glu Phe Leu Pro Phe Leu
                                     10
Ser Leu Ala Gly Asp Ala Arg Leu Thr Leu Val Lys Glu
            20
<210> 26
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<400> 26
His Leu Leu Gln Phe Asn Phe Arg Glu Lys Lys Leu Asn Gly Ile Thr
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Lys Leu Cys Ile Ala Gly Asp Ile Thr Leu Thr Ser Val Leu Thr Ser
                                 25
Met Ile
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Pro Phe Tyr Glu Tyr Gly His Arg Leu Pro Leu Gln Met Val Thr His
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Leu Gln Val Asp Gly Asp Leu Glu Leu Gln Ser Ile Asn Phe Leu Gly
Gly Gln Pro Ala Ala Ser Gln Tyr Pro Gly Thr Met Thr Ile Pro
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<213> mouse
<400> 28
Ser Phe Tyr Glu Tyr Gly His Arg Leu Pro Val Gln Met Val Thr His
Leu Gln Val Asp Gly Asp Leu Glu Leu Gln Ser Ile Asn Phe Leu Gly
Gly Gln Pro Ala Ala Ala Pro Tyr Ala Gly Ala Met Thr Ile Pro
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Glu Phe Lys Phe Pro Asn Arg Leu Asn Leu Glu Ala Ile Asn Tyr Met
Ala Ala Asp Gly Asp Phe Lys Ile Lys Cys Val Ala Phe Asp
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<212> PRT
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Pro Phe Tyr Glu Tyr Gly His Arg Leu Pro Leu Gln Met Val Thr His
Leu Gln Val Asp Gly Asp Leu Gln Leu Gln Ser Ile Asn Phe Ile Gly
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Gly Gln Pro Leu Arg Pro Gln Gly Pro Pro Met Met Pro
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Tyr Pro Val Pro Tyr Glu Ser Gly Leu Ala Asn Gly Leu Pro Val Gly
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Lys Ser Leu Leu Val Phe Gly
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<212> PRT
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Ala Tyr Pro Ser Ala Gly Tyr Asn Pro Gln Met Asn Ser Leu Pro Val
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Met Ala Gly Pro Pro Ile Phe Asn Pro Pro Val Pro Tyr Val Gly Thr
Leu Gln Gly Gly Leu Thr Ala Arg Arg Thr Ile Ile Ile Lys Gly
                            40
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<211> 50
<212> PRT
<213> mouse
<400> 33
Ala Tyr Pro Ala Gly Ser Pro Gly Tyr Asn Pro Pro Gln Met Asn Thr
Leu Pro Val Met Thr Gly Pro Pro Val Phe Asn Pro Arg Val Pro Tyr
Val Gly Ala Leu Gln Gly Gly Leu Thr Leu Pro Arg Thr Ile Ile Ile
                             40
Lys Gly
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<212> PRT
<213> human
<400> 34
Pro Tyr Pro Gly Pro Gly His Cys His Gln Gln Leu Asn Ser Leu Pro
                                     10
Thr Met Glu Gly Pro Pro Thr Phe Asn Pro Val Pro Tyr Phe Gly Arg
                                 25
Leu Gln Gly Gly Leu Thr Ala Arg Arg Thr Ile Ile Lys Gly
                             40
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<210> 35
<211> 49
<212> PRT
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<400> 35
Thr Val Glu Lys Lys Ala Lys Arg Phe His Val Asn Leu Leu Arg Lys
                                                         15
                  5
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Asn Gly Asp Ile Ser Phe His Phe Asn Pro Arg Phe Asp Glu Lys His
                                25
Val Ile Arg Asn Ser Leu Ala Ala Asn Glu Trp Gly Asn Glu Glu Arg
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Glu
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Ser Thr Gly Asp Ile Ala Phe His Met Asn Pro Arg Ile Gly Asp Cys
Val Val Arg Asn Ser Tyr Met Asn Gly Ser Trp Gly Ser Glu Glu Arg
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Lys
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<211> 49
<212> PRT
<213> mouse
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Tyr Val Leu Pro Thr Ala Arg Asn Phe Val Ile Asn Phe Lys Val Gly
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Ser Ser Gly Asp Ile Ala Leu His Leu Asn Pro Arg Ile Gly Asp Ser
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Val Val Arg Asn Ser Phe Met Asn Gly Ser Trp Gly Ala Glu Glu Arg
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Lys
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Tyr Val Pro Pro Thr Gly Lys Ser Phe Ala Ile Asn Phe Lys Val Gly
 Ser Ser Gly Asp Ile Ala Leu His Ile Asn Pro His Gly Asn Gly Thr
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 Val Val Arg Asn Ser Leu Leu Asn Gly Ser Trp Gly Ser Glu Glu Lys
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40

35

Lys

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Arg Cys Gly Thr Asp Arg Phe Lys Val Phe Ala Asn Gly Gln His Leu
Phe Asp Phe Ser His Arg Phe Gln Ala Phe Gln Arg Val Asp Met Leu
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<212> PRT
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<400> 40
Val Ala Tyr Asn Pro Phe Gly Pro Gly Gln Phe Phe Asp Leu Ser Ile
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Arg Cys Gly Met Asp Arg Phe Lys Val Phe Ala Asn Gly Gln His Leu
Phe Asp Phe Ser His Arg Phe Gln Ala Phe Gln Met Val Asp Thr Leu
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Arg Cys Gly Leu Asp Arg Phe Lys Val Tyr Ala Asn Gly Gln His Leu
Phe Asp Phe Ala His Pro Ser Arg Ala Phe Gln Arg Val Asp Thr Leu
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Arg Cys Gly Leu Asp Arg Phe Lys Val Tyr Ala Asn Gly Gln His Leu
                                 25
 Phe Asp Phe Ala His Pro Ser Arg Ala Phe Gln Arg Val Asp Thr Leu
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Gln Ile Ser Gly Asp Ile Glu Leu Ser Gly Ile Gln Ile Gln
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Glu Ile Lys Gly Asp Ile Thr Leu Ser Tyr Val Gln Ile
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Glu Ile Asn Gly Asp Ile Thr Leu
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<210> 46
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Glu Ile Gln Gly Asp Val Thr Leu Ser Tyr Val Gln Ile
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<210> 47
<211> 914
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<213> human
<400> 47
Cys Cys Ala Gly Cys Cys Ala Ala Cys Gly Ala Gly Cys Gly Ala
                                     10
Ala Ala Ala Thr Gly Gly Cys Ala Gly Ala Cys Ala Ala Thr Thr
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                                 25
Thr Thr Cys Gly Cys Thr Cys Cys Ala Thr Gly Ala Thr Gly Cys Gly
Thr Thr Ala Thr Cys Thr Gly Gly Gly Thr Cys Thr Gly Gly Ala Ala
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60 55 50 Ala Cys Cys Cys Ala Ala Ala Cys Cys Cys Thr Cys Ala Ala Gly Gly 75 70 Ala Thr Gly Gly Cys Cys Thr Gly Gly Cys Gly Cys Ala Thr Gly Gly 90 Gly Gly Gly Ala Ala Cys Cys Ala Gly Cys Cys Thr Gly Cys Thr Gly 105 Gly Gly Gly Cys Ala Gly Gly Gly Gly Cys Thr Ala Cys Cys 120 Ala Gly Gly Gly Cys Thr Thr Cys Cys Thr Ala Thr Cys Cys Thr Gly Gly Gly Cys Cys Thr Ala Cys Cys Cys Gly Gly Gly Cys · 150 155 Ala Gly Gly Cys Ala Cys Cys Cys Cys Cys Ala Gly Gly Gly Cys 170 165 Thr Thr Ala Thr Cys Cys Thr Gly Gly Ala Cys Ala Gly Gly Cys Ala 185 Cys Cys Thr Cys Cys Ala Gly Gly Cys Gly Cys Cys Thr Ala Cys Cys Ala Thr Gly Gly Ala Gly Cys Ala Cys Cys Thr Gly Gly Ala Gly Cys 220 215 Thr Thr Ala Thr Cys Cys Cys Gly Gly Ala Gly Cys Ala Cys Cys Thr 230 235 Gly Cys Ala Cys Cys Thr Gly Gly Ala Gly Thr Cys Thr Ala Cys Cys 250 245 Cys Ala Gly Gly Cys Cys Ala Cys Cys Cys Ala Gly Cys Gly Gly 265 Cys Cys Cys Thr Gly Gly Gly Cys Cys Thr Ala Cys Cys Ala 280 Thr Cys Thr Thr Cys Thr Gly Gly Ala Cys Ala Gly Cys Cys Ala Ala 300 295 Gly Thr Gly Cys Cys Cys Cys Gly Gly Ala Gly Cys Cys Thr Ala 310 315 Cys Cys Cys Thr Gly Cys Cys Ala Cys Thr Gly Gly Cys Cys Cys 330 325 Thr Ala Thr Gly Gly Cys Gly Cys Cys Cys Cys Thr Gly Cys Thr Gly 345 340 Gly Gly Cys Cys Ala Cys Thr Gly Ala Thr Thr Gly Thr Gly Cys Cys 360 Thr Thr Ala Thr Ala Ala Cys Cys Thr Gly Cys Cys Thr Thr Thr Gly 375 380 Cys Cys Thr Gly Gly Gly Gly Ala Gly Thr Gly Gly Thr Gly Cys 390 395 Cys Thr Cys Gly Cys Ala Thr Gly Cys Thr Gly Ala Thr Ala Ala Cys 410 405 Ala Ala Thr Thr Cys Thr Gly Gly Gly Cys Ala Cys Gly Gly Thr Gly 425 Ala Ala Gly Cys Cys Cys Ala Ala Thr Gly Cys Ala Ala Ala Cys Ala 440 Gly Ala Ala Thr Thr Gly Cys Thr Thr Thr Ala Gly Ala Thr Thr Thr 455 460 Cys Cys Ala Ala Ala Gly Ala Gly Gly Gly Ala Ala Thr Gly Ala Thr 470 475 Gly Thr Thr Gly Cys Cys Thr Thr Cys Cys Ala Cys Thr Thr Thr Ala 490

Ala Cys Cys Cys Ala Cys Gly Cys Thr Thr Cys Ala Ala Thr Gly Ala 505 Gly Ala Ala Cys Ala Ala Cys Ala Gly Gly Ala Gly Ala Gly Thr Cys 520 Ala Thr Thr Gly Thr Thr Gly Cys Ala Ala Thr Ala Cys Ala Ala 535 Ala Gly Cys Thr Gly Gly Ala Thr Ala Ala Thr Ala Ala Cys Thr Gly 555 550 Gly Gly Gly Ala Ala Gly Gly Gly Ala Ala Gly Ala Ala Ala Gly Ala 570 Cys Ala Gly Thr Cys Gly Gly Thr Thr Thr Thr Cys Cys Cys Ala Thr 585 Thr Thr Gly Ala Ala Ala Gly Thr Gly Gly Gly Ala Ala Ala Cys Cys 600 Ala Thr Thr Cys Ala Ala Ala Ala Thr Ala Cys Ala Ala Gly Thr Ala 615 Cys Thr Gly Gly Thr Thr Gly Ala Ala Cys Cys Thr Gly Ala Cys Cys 630 Ala Cys Thr Thr Cys Ala Ala Gly Gly Thr Thr Gly Cys Ala Gly Thr 650 645 Gly Ala Ala Thr Gly Ala Thr Gly Cys Thr Cys Ala Cys Thr Thr Gly 665 Thr Thr Gly Cys Ala Gly Thr Ala Cys Ala Ala Thr Cys Ala Thr Cys 685 680 Gly Gly Gly Thr Thr Ala Ala Ala Ala Ala Cys Thr Cys Ala Ala 700 Thr Gly Ala Ala Ala Thr Cys Ala Gly Cys Ala Ala Ala Cys Thr Gly 710 715 Gly Gly Ala Ala Thr Thr Cys Thr Gly Gly Thr Gly Ala Cys Ala 725 730 Thr Ala Gly Ala Cys Cys Thr Cys Ala Cys Cys Ala Gly Thr Gly Cys 745 740 Thr Thr Cys Ala Thr Ala Thr Ala Cys Cys Ala Thr Gly Ala Thr Ala 760 Thr Ala Ala Thr Cys Thr Gly Ala Ala Ala Gly Gly Gly Cys Ala 775 795 790 Ala Ala Ala Gly Ala Ala Thr Cys Thr Ala Ala Ala Cys Cys Thr Thr 810 805 Ala Cys Ala Thr Gly Thr Gly Thr Ala Ala Gly Gly Thr Thr 825 Cys Ala Thr Gly Thr Thr Cys Ala Cys Thr Gly Thr Gly Ala Gly Thr 845 840 Gly Ala Ala Ala Thr Thr Thr Thr Thr Ala Cys Ala Thr Thr Cys 855 860 Ala Thr Cys Ala Ala Thr Ala Thr Cys Cys Cys Thr Cys Thr Thr Gly 870 875 Thr Ala Ala Gly Thr Cys Ala Thr Cys Thr Ala Cys Thr Thr Ala Ala 890 Thr Ala Ala Ala Thr Ala Thr Thr Ala Cys Ala Gly Thr Gly Ala Ala 900 905 Ala Gly